Minutes of spin meeting 07/30/08

Haixin presented the reanalysis of the run6 polarization intensity scan data. Based on Fanglei's recent spin tracking near injection, one can extract the resonance strength for both horizontal and vertical intrinsic resonances before $G\gamma = 7$. The horizontal resonance effect from the rest of resonances ($G\gamma > 7$) can be calculated from the simple mathcad model based on the real ramp rate. There are additional polarization loss around 36+ν_y due to slower ramp rate and strongest resonance strength in the AGS. The overall polarization transmission efficiency of AGS ramp can be derived from the product of the individual transmission efficiencies. Due to the non-zero emittance with zero intensity (9π horizontal and 8π vertical), the transmission efficiency is about 0.9 instead of 1 at zero intensity. The slope of polarization on intensity is similar for both model and experimental data fitting. Since all run6 intensity scans were bundled together, Kevin and Waldo suggested to normalize each scan to the average of either 200MeV polarization (assuming the Booster loss is fixed) or AGS injection measurements (we only had few of them spread in the run). In addition, the quality of the fitting should be given (such as χ^2). For the fitting to the 36+ν_y tracking results, Waldo suggested to constraint the best polarization with zero intensity (or smallest emittance). Waldo also questioned if there is any polarization intensity scan at injection to safely say that these effects are indeed in the AGS. Haixin and Leif recalled that we did take such data in the end of run8 and will check if there is any intensity dependence (first recollection is no). The analysis gives hint where to invest for higher polarization, such as reducing emittance overall, tune maneuver near injection, etc.

Waldo reported that after last meeting, he and Haixin discussed the way Fanglei calculating the emittance in her tracking for tune jump. It turned out that after using the correct way to define the emittance, emittances remained constant for several trackings she performed. Fanglei is going to report detail results in the future.

Haixin